

**ADDERS AND ADDER BIT BLOCKS HAVING AN INTERNAL
PROPAGATION CHARACTERISTIC INDEPENDENT OF A CARRY
INPUT TO THE BIT BLOCK AND METHODS FOR USING THE SAME**

Abstract of the Disclosure

Bit blocks for an adder are provided which include a first bit stage that generates a first bit associated propagation characteristic (bapc). The bapc is independent of a carry input to the bit block from another bit block of the adder.

5 Additional bit stages may be included in the bit block such as a second bit stage that, based on the first bapc, generates a second bapc that is also independent of the carry input to the bit block. The first and second bapc may be generated based on first and second operand bits input to the respective stages and a bapc that is
10 generated by a less significant bit stage of the bit block and is independent of the carry input to the bit block. Adders including the bit blocks and methods for adding using the bit block as well as bit block size optimization methods are also provided.